# MONTHLY NOTICES

OF THE

# ROYAL ASTRONOMICAL SOCIETY.

H. F. NEWALL, Esq., M.A., F.R.S., PRESIDENT, in the Chair.

Henry Boase Austin, J.P., Government Buildings, Bloemfontein, Orange River Colony, South Africa;

W. Geoffrey Duffield, Physical Laboratory, Manchester;

Wm. Earnshaw Etzel, B.S., Litt.L., M.S.M.F., Professor of Sciences, St Bernard's, Rochester, N.Y., U.S.A.;

John M. Field, 1 Hart Street, Edinburgh;

James D. Maddrill, Ph.D., International Latitude Observatory, Ukiah, California, U.S.A.;

William Henry Rees, B.Sc., County School, Pontypridd, and 2 Craigwen Place, Pontypridd, South Wales;

Thomas James Forrester Smith, Newstead, Wavertree, Liverpool; and

Captain James Weir, F.R.G.S., Examiner of Masters and Mates in Navigation and Seamanship to the Board of Trade, 5 Clive Terrace, Penarth, South Wales,

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

Frederic Hermann Albert Alfred Buss, 2 Lansdowne Terrace, Grosvenor Square, Ashton-on-Mersey, near Manchester (proposed by A. Fowler);

Arthur du Pré Denning, M.Sc., Ph.D., Lecturer in Physics, Birmingham University, 18 Lightwoods Hill, Birmingham (proposed by William Briggs);

Herbert Shaw, Royal College of Science, South Kensington, S.W. (proposed by A. Fowler) ; and

James Henry Worthington, Student in the University of Oxford, Bindon, Wellington, Somerset (proposed by H. H. Turner).

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Sixty presents were announced as having been received since the last meeting, including, amongst others :—

E. T. Whittaker, The Theory of Optical Instruments, presented by the author ; framed photograph of 14th century clock restored by J. J. Hall, presented by Mr. Hall ; Calendrier Perpétuel, presented by M. Bosson.

Seven transparencies of Sun-spots, Comet, Planets, and Nebulæ, from negatives taken at the Royal Observatory, Greenwich, presented by the Astronomer Royal.

J. C. Kapteyn, On the number of stars of determined magnitude and determined galactic latitude (Pub. Astron. Laboratory, Groningen, No. 18), presented by Professor Kapteyn.

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*On the Lunar Inequalities due to Planetary Action.*
By Ernest W. Brown, D.Sc., F.R.S.

1. I have lately finished the computation of the terms in the Moon's motion due to the actions—direct and indirect—of the planets, and it is of interest to compare the results with those of previous investigators. There are two extensive lists in print : one given by Radau [*] in 1892, and the other by Newcomb [†] a few months ago. Both of these give only the terms in longitude, and I shall therefore limit the results set forth here for discussion to these terms, reserving the complete list for a memoir, containing also my methods and the details, which I hope to present to the Society at a later date. I have also omitted here the secular terms and those which depend solely on the lunar arguments, since the results for them are not in doubt, and since they will ultimately be combined with terms arising from the figure of the Earth. Further, I only consider quantities of the first order relative to the planetary masses, while Newcomb has included the mutual perturbations in his values for the direct action. But the latter do not affect any of the terms except one or two of long period, mentioned in No. 10 below.

The great majority (about 400) of the terms are of short period,

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[*] " Recherches concernant les Inégalités planétaires du mouvement de la Lune," *Paris Obs. Ann.* (*Mém.*), vol. xxi.

[†] " Investigation of Inequalities in the motion of the Moon produced by the action of the planets," *Carnegie Inst. Publ.*, 72.